MOXA®

Reliable Networks ▲ Sincere Service

Reliable Industrial Networks for a Smarter Future

Moxa provides smart, reliable networks to reduce operational costs, simplify management, and empower your critical applications.

Network Management Suite

Multiport Secure Routers

Full Gigabit Switches

Dual-Radio Wireless

Industrial Gateways

www.moxa.com

Reliable Edge-to-Core Networks for Smart Applications

The automation industry is accelerating network expansion and convergence to meet emerging opportunities and challenges. To stay ahead of the curve, Moxa's industrial Ethernet solutions speed up automation network convergence by constantly improving industry-focused reliability and interoperability. Transcending the boundaries between wired and wireless networks, as well as legacy and modern technologies, Moxa's industrial Ethernet solutions bring you reliable, low cost, and easy-to-deploy edge-to-core networks for smart applications in harsh conditions.

Five Pillars of Network Reliability

BIG BANDWIDTH

Moxa's industrial Ethernet portfolio addresses edge-to-core multilayer network deployment. A wide selection of 10GbE, GbE, 802.11n, and PoE+ product lines provides the most comprehensive scalability and future-proof performance.

EASY MANAGEMENT

Designed for automation engineers, MXstudio is a suite of network management software with smart graphical user interfaces that make configuration, deployment, monitoring, and troubleshooting quick and easy.

SECURED NETWORK

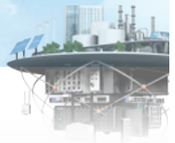
Network security is never optional. Integrate cost-effective cybersecurity into your entire network infrastructure with Moxa's multilayer security solutions and multiport router/switch combination devices.

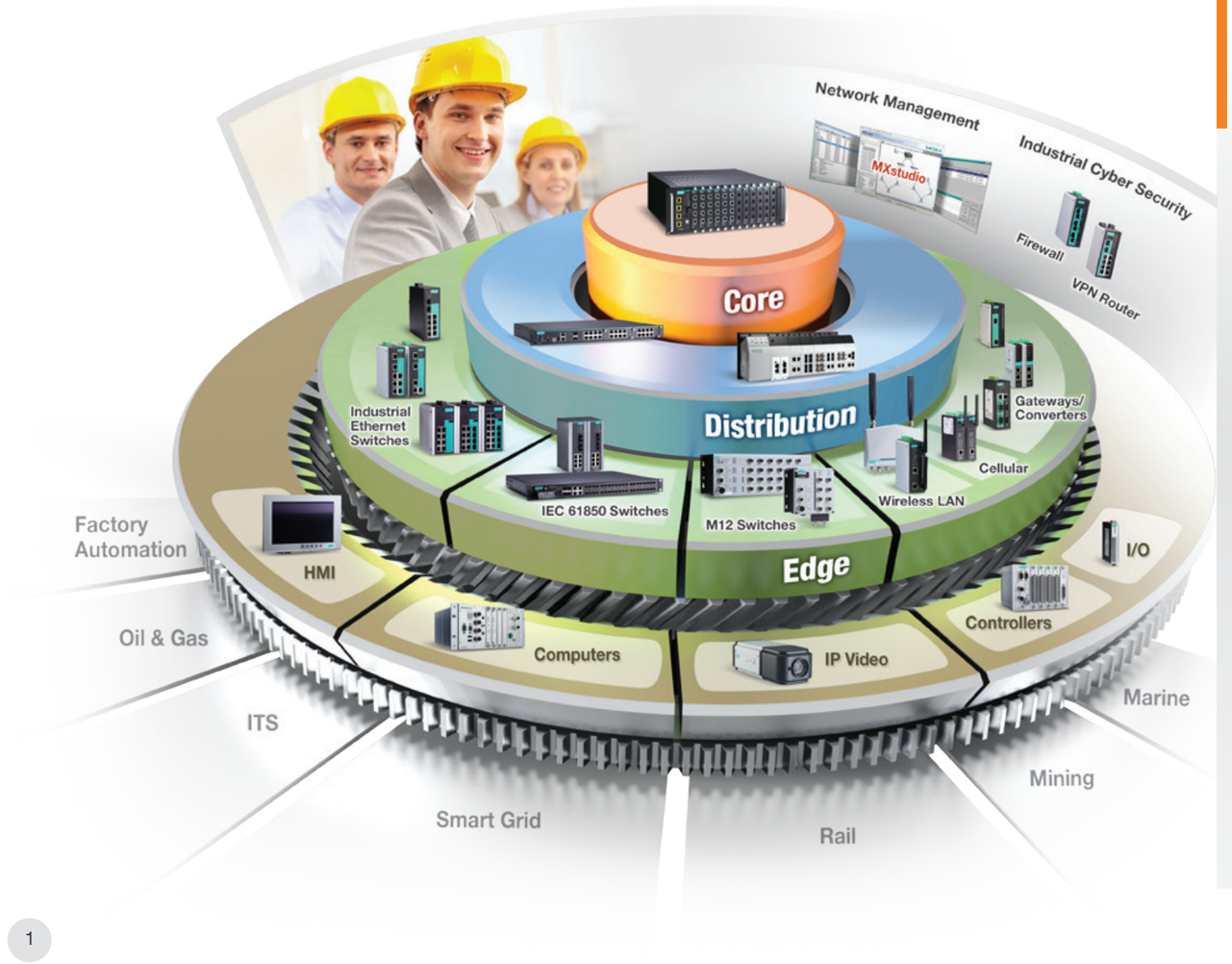
SMART REDUNDANCY

Moxa offers innovative wired and wireless redundancy and seamless roaming technologies that optimize your network designs with superior availability, scalability, and also large savings on deployment time and cost.

LEGACY TO IP

All Moxa Ethernet managed switches and gateways support industrial PROFINET, EtherNet/IP, and Modbus protocols to enable communications across different manufacturing protocols for more sophisticated SCADA applications and lower cost of operation.





A Reliability-Focused Solution Portfolio

Moxa's edge-to-core industrial Ethernet solutions extend network convergence to a wide variety of hardware and software to meet the challenges of demanding applications in harsh environments.

Automation-Friendly Network Management Suite pages 3-4

You don't need to be an IT expert to use Moxa's MXstudio network management suite. Download the full-featured trial version to see how easy it can be to manage your network life cycle.

NAT/VPN/Firewall Secure Routers pages 5-6

From field sites, to function zones, to critical assets, Moxa facilitates multi-layer cybersecurity to protect your entire infrastructure with a full line of secure routers that deliver up to 500 Mbps throughput.

Industrial Ethernet Switches pages 7-12

Moxa's portfolio of industrial switches deliver both flexibility and reliability with over 500 products ranging from layer 2 and layer 3 switches, to high-density GbE and 10GbE rackmount models, to compact DIN-rail models.

Industrial Wireless Connectivity pages 13-16

By combining Turbo Roaming, dual-radio redundancy, and GuaranLink technologies, Moxa's wireless solutions guarantee the most mobile and reliable WiFi and cellular connectivity anywhere.

Industrial Ethernet Gateways pages 17-18

Moxa's industrial Ethernet gateways enable reliable and seamless fieldbus integration between factory automation networks and the industrial Ethernet backbone for real-time applications.

Other Networking and Automation Solutions pages 19-22

Moxa's solutions provide industrial networks with advanced data and video control, monitoring, and communications capabilities. Our automation solutions are compatible with several important industrial standards and application requirements to achieve a reliable and fully converged Ethernet network.

QUALITY & RELIABILITY

- Wide temperature models available
- IP30/54/66/67/68, metal enclosures
- Conformal coating
- Fanless design and high MTBF
- Hazardous location certifications
- 5-year warranty

SERVICE THAT ENSURES SUCCESS

With over 25 years of industry experience, Moxa has the know-how to design and deploy industrial networks that best fit your unique requirements. Call on Moxa's consulting services to simplify and optimize your industrial network infrastructure according to the specific industry standards, protocols, and technologies you need.

Integrated Industrial Network Software for the Entire Management Life Cycle

- Easy Configuration
- Smart Visualized Monitoring
- Easy Backup Management
- Quick Diagnostics

MXstudio: Answers for Network Management Challenges

Easy network management for industrial automation is no longer a dream. Thanks to MXstudio, a suite of industrial network management software, industrial network managers can now leverage proactive intelligence to answer complex management challenges throughout the network management life cycle, which includes installation, operation, maintenance, and diagnostics. In particular, this management suite includes Moxa's MXconfig, MXview, and N-Snap software that save you time and effort in keeping critical industrial networks up and running for maximum performance.

Stages	Challenges	MXstudio Solutions	Benefits
Installation	One by one device deployment is a laborious, time-consuming, and error-prone task.	MXconfig speeds up network deployment by flexible batch configuration, duplication, and link sequence detection.	**Easy Configuration** Make mass configuration ten times faster.
Operation	Making sense of network health, traffic, and activities can be a daunting task. Moreover, interconnectivity issues and missing or mishandled device statuses can also create problems and losses.	MXview offers a live visualization of the physical network topology that presents critical information at a glance. Non-IT engineers can simply click on the live-view graphic to manage all network statuses, traffic, and activity easily and quickly.	**Smart Visualization** Visualize the network status in a graphical interface.
Maintenance	Network backups allow recovery for reliable operations. However, backing up a network normally requires repetitive manual tasks that raise maintenance time, costs, and risks.	MXview's Config Center supports one-click automatic bulk configuration backups, allowing scheduled backups and selectable rollbacks for easy maintenance.	**Easy Maintenance** Enable automatic configuration backups.
Diagnostics	Finding the source or root cause of network problems can be very difficult in large networks. Delayed and incorrect diagnostics waste time and resources when troubleshooting blindfolded.	MXview enables event search and playback functions like video playback. Users can rewind topology and event to investigate network changes easily. N-Snap also enables one-click device information collection that helps engineers identify and analyze any changes.	**Quick Troubleshooting** Identify the source of network problems quickly.

Unlimited-Time Free Trial

MXstudio Download
Download our fully functional 20-node free trial version; no time limit
moxa.com/MXstudio_download

Video Demo
Learn how MXstudio empowers you throughout the entire network life cycle
www.moxa.com/MXstudio_video

MXstudio Software Solutions

MXconfig
Industrial Network Configuration Tool

- Mass configuration function to reduce setup time
- Link sequence detection eliminates manual configuration errors
- Configuration overview for efficient management

MXview
Industrial Network Management Software

- Automatic topology discovery and visualization with VLAN/IGMP grouping
- Event Playback for reviewable diagnostics
- Third-party devices supported with MIB complier and MIB browser
- OPC tags to integrate with SCADA/HMI applications

N-Snap
Industrial Network Snapshot Tool

- A standalone utility used to take network snapshots for quick troubleshooting
- Automatically compare network and device data, and highlight the differences

Third Party Support and Collaboration

Collaboration with Third Party NMSs

MXview can extend the reach of network management and collaborate with large network systems by setting trap receivers and sending SNMP traps to up to two other network management software platforms, which may focus on end-to-end service availability rather than physical network connectivity.

Easy SCADA Communication

For integration with automation systems, MXview can act as an OPC server and generate OPC tags to simplify communication between network devices, data processors, and SCADA/HMI monitoring.

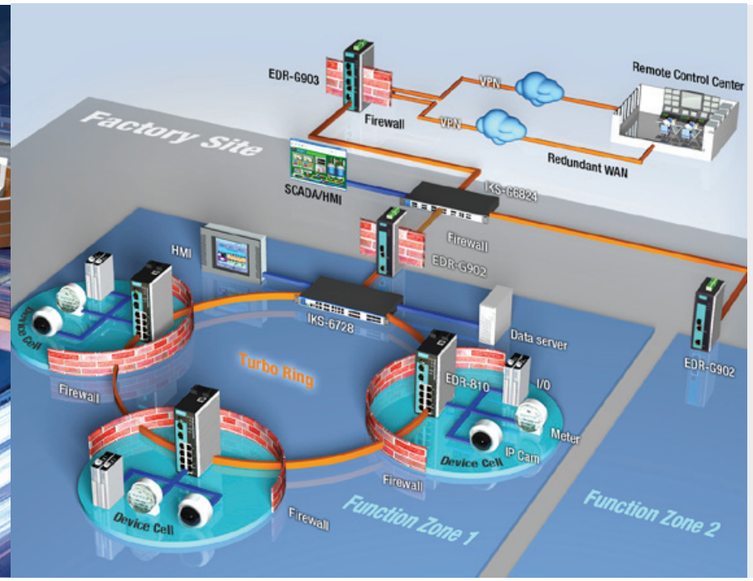
Support List for Moxa's Networking Devices

* Available in Q3, 2014.

	Managed Ethernet Switches	Wireless AP/ Clients	Secure Routers	Industrial Ethernet Gateways	Serial-to-Ethernet Devices	Ethernet Extenders	IP Cameras	ioLogik E2000/5000 RTU Controllers	Third Party SNMP
MXview	✓	✓	✓	✓	✓	✓	✓	✓	✓
MXconfig	✓	✓*	✓*	✓*	✓*	✓	✓*	–	–
N-Snap	✓	–	–	–	–	–	–	–	–

Extend Cybersecurity Throughout Your Entire Network

- Convenient Router/Switch Combo for Reduced Costs
- VPN Tunnels for Secure Remote Access
- Firewalls for Critical Asset Protection
- Built-in Modbus TCP Packet Inspection



Multi-Layer, Defense-in-Depth

ANSI/ISA-99 (IEC 62443) standards lay out the best practices for industrial control system (ICS) security. In the ANSI/ISA-99 model, ICS devices are segmented into independent function zones that communicate through firewall-protected "conduits."

Moxa offers a complete portfolio of cybersecurity solutions to help you deploy a defense-in-depth security infrastructure that expands security coverage on your automation network at various locations:

- Protect the entire local site and secure remote data transmissions from the control centers.
- Protect data transmissions from multiple device cells and critical devices.
- Protect the data collected from multiple field devices, including I/O devices, meters, and IP cameras.

Enhance Security without Raising Costs

Security waits for no one, especially in around-the-clock industrial automation applications. To protect your mission-critical networks, Moxa provides a series of Gigabit secure routers that protect remote access to field devices through public networks and facilitate layered defense-in-depth network security for automation networks.

The EDR series provides up to 150 Mbps VPN throughput and 500 Mbps firewall throughput for both secure remote access and critical infrastructure protection. In addition, Moxa has added layer 2 switching functions to the EDR-810 firewall/NAT/VPN router. Using this router/switch combo solution, customers can extend pervasive network security throughout the entire network without raising costs.

EDR-810

Secure Router/ Switch Combo

No.1 Security Defender

The EDR-810 is a multiport industrial secure router with L2 switch functions that reduce deployment costs and effort. This solution excels in remote field monitoring and maintenance, small-scale control networks, or control cells partitioned by function.

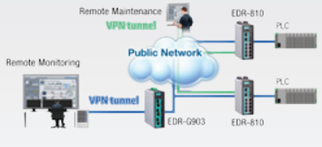
- 8+2G for 1 WAN and 15 LAN interfaces
- Firewall/NAT/VPN/Switch/Router
- Built-in Modbus TCP deep packet inspection
- Cost-saving with multiport connectivity

Critical Device Protection

The EDR series provides firewall protection for critical network devices such as PLCs, RTUs, and DCS, as well as support for industrial protocols.

Secure Remote Access

Using IPSec and L2TP technologies, the EDR-810 can set up 10 encrypted VPN tunnels for secure remote access between industrial networks and remote applications, such as water treatment, oil and gas, power, or ITS networks.



TCP Packet Inspection

All EDR routers come with PacketGuard™ inspection software to perform deep Modbus TCP protocol inspection and automation network data filtering with a simple click.

Wired and Wireless Collaborated Security

Moxa's 2G/3G cellular devices can be used with the EDR series secure router to establish reliable VPN connections and extend secure remote access beyond wired communication.

- OnCell 5004/5104-HSPA
  Industrial five-band HSPA cellular routers
- OnCell G3110/G3150-HSPA
  Industrial five-band HSPA IP gateways

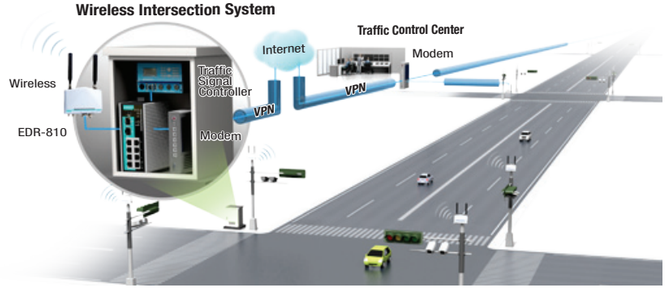
moxa.com/secure_ITS

An ITS Story from the U.S.

Secure Traffic Signal Controls

A municipal traffic signal control system in the US adopted the EDR-810-VPN to facilitate encrypted network connections between 115 intersections and the traffic control center.

Solution & Benefits
- 8 + 2G ports for Ethernet and VPN connections
- 20 Mbps VPN bandwidth for remote communication and centralized control
- Dual power inputs for redundancy
- NEMA TS2 compliance

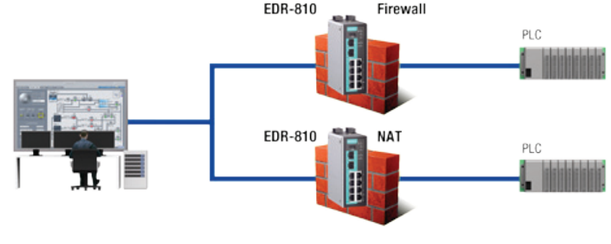


A Factory Automation Story from the U.S.

Cybersecurity in Factory Automation

A world-leading consumer goods manufacturer used the EDR-810 to protect and connect its production networks.

Solution & Benefits
- 8 + 2G ports for Ethernet and firewall connections
- Factory network segmentation and filtering



Secure Routers

Model	EDR-G903	EDR-G902	EDR-810
Target requirement	Dual WAN redundancy	Security between WAN and LAN communication	Multiple ports for direct device connections
Interface	2 WANs (Combo); 1 LAN (Combo)	1 WAN (Combo); 1 LAN (RJ45)	1 WAN; 15 LANs (SFP fiber or RJ45)
Throughput	500 Mbps (40,000 fps)	300 Mbps (25,000 fps)	100 Mbps (10,000 fps)
Firewall/NAT	512/256 policies	256/128 policies	256/128 policies
VPN	100 IPSec tunnels	50 IPSec tunnels	10 IPSec tunnels
WAN backup	Dual WANs	–	–
DMZ	1	–	–

Extend Industrial Reliability to Control Rooms

- L2/L3 1/10GbE Portfolio
- Network Recovery in under 20 ms
- Built-in Reliability
- Lower Total Cost of Ownership

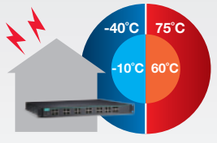
Extend Consistent Reliability to Control Rooms

Does your control room provide enough protection to prevent network interruptions caused by electrical noise, power surge, EMI, or link failure? For networks that need consistent edge-to-core reliability in mission-critical applications, the time has come to extend the proven reliability of industrial switches from the field site into the control room by using Moxa's complete range of GbE-level and 10GbE-level industrial rackmount switch solutions.

Availability and Reliability

Moxa's industrial rackmount switches address built-in reliability that delivers superior EMI shielding and extreme temperature resilience without relying on a fan or heater.

- Network recovery in under 20 ms
- -40 to 75°C operating temperature
- High level EMI/EMC shielding
- High MTBF with no fan/heater needed
- Hot swappable operation (ICS-G7x48A/G7x50A/G7x52A series only)
- Redundant power supply with isolated protection



Future-Proof Performance

Moxa's rackmount switches include high-density fixed and modular 10GbE and full-Gigabit platforms with copper, fiber, or SFP/SFP+ port combinations to fulfill highly dynamic backbone requirements.

- Up to 4 10GbE and 48 GbE ports
- Flexible density with 4-port slot and single-port 10GbE/GbE modularity
- Tiny 10GbE/GbE SFP transceiver modules allow transmission up to 120 km

High-density GbE/10GbE links

Lower Total Cost of Ownership

Moxa's redundancy technologies provide self-healing recovery in under 20 ms, and also lower total cost of ownership.

- Turbo Ring and Turbo Chain technologies enable media redundancy under 20 ms (@250 switches) without the expense of duplicate hardware
- Turbo Chain technology freely creates additional redundant subnets as needed, without the expense of ring coupling connections
- Best of all, both technologies are free and available for all of Moxa's managed switches

Redundant ring & uplinks

2014 Additions!

USB Support

Moxa's rackmount switches now provide two USB ports; one for USB storage, backup, and restoration; and one USB console used for local initial access.

Web UI 2.0

The new web console offers a virtual panel that displays the switch's front panel for easy monitoring of port connections and traffic volume.

Layer 3 Switches

	ICS-G7852A/G7850A	ICS-G7828A/G7826A	ICS-G7848A	IKS-G6824A	EDS-828	PT-7828
10GbE	4/2	4/2	–	–	–	–
GbE	48/48	24/24	48	24	4	4
10/100 FE	–	–	–	–	24	24

* All A series rackmount switches will be availabile in Q3, 2014.

Video Demo

moxa.com/control_room_reliability

The Obvious Choice When Reliability Is Important

	Moxa Industrial Rackmount Switches	Commercial Rackmount Switches
ESD	±8 kV	±4 kV
Radiated RFI	10 V/m @ 80 Mhz to 1 GHz	3 V/m @ 80 Mhz to 1 GHz
Surge	2 kV	1.5 kV
EFT	1 kV	0.5 kV
Operating Temperature	-10 to 60°C / -40 to 75°C	0 to 40°C
Heat Dissipation	Fanless	Fan
Industrial Certifications	EN 60950-1, EN 50121-4, FCC Part15, CISPR (EN 55022) class A	CE/FCC

A Railway Story from France

300-km Railway Surveillance

Moxa's rackmount switches and management software were used to aggregate and forward all network traffic from distributed IP surveillance, access control, IP phone, and signaling systems along a high-speed rail line.

Solution & Benefits

- IKS-G6824 offers 24-port Gigabit bandwidth, and layer 3 routing, and switching for central management.
- IKS-6728-8PoE offers 4G+24 modular connection and PoE connectivity up to 8-port 36W output to support power-hungry cameras with power cable savings.
- MXview offers live view topology monitoring for easy diagnostics and event management.

An ITS Story from the U.S.

moxa.com/tunnel_surveillance_solution

10GbE Core Backbone for Critical Tunnel Surveillance

A U.S. tunnel used Moxa's edge-to-core Ethernet solution to deploy a robust communication infrastructure for real-time monitoring of IP surveillance, mass-evacuation, variable message signs, and radio broadcast systems.

Solution & Benefits

- Live color visualization by MXview provides efficient event monitoring.
- ICS-G7850 core switches offer 10GbE real-time aggregation of massive video and data traffic.
- EDS-611/619 modular switches offer flexible and durable outdoor connectivity.
- VPort 461 video encoders migrate existing analog CCTV cameras to an IP network for cost-efficient H.264 IP video streaming.
- Excellent reliability with built-in self-healing recovery and wide temperature operation.

The World's First MMS Switch Family

PT-7528 Series IEC 61850-3 28-port managed rackmount

- IEC 61850-3, IEEE 1613 compliant
- Built-in MMS server for Power SCADA communications
- NoiseGuard™ for wire speed zero packet loss
- Redundant isolated power inputs
- High availability with Turbo Ring and Turbo Chain, RSTP/STP, and MSTP redundancy protocols
- -40 to 85°C operating temperature range

Layer 2 Switches

	ICS-G7752A/G7750A	ICS-G7728A/G7726A	ICS-G7748A	IKS-G6524A	IKS-6728A/6726A	IKS-6728A-8PoE	EDS-728	PT-7728-PTP	PT-7528
10GbE	4/2	4/2	–	–	–	–	–	–	–
GbE	48/48	24/24	48	24	4/2	4	4	4	4
10/100 FE	–	–	–	–	24	Up to 24	Up to 24	24	24
PoE	–	–	–	–	–	8 (up to 24)	–	–	–

* All A series rackmount switches will be availabile in Q3, 2014

New Gigabit Solutions for Extreme Reliability and Productivity

- 3 to 16-Port Gigabit Capability
- Industrial Protocols for SCADA Integration
- Utmost Reliability with Diverse Industry Certifications

Power Up Heavy Duty IP Cameras over Ethernet

- High Power 36 W PoE+ Solutions
- Up to 24 PoE+ Ports
- 3 kV LAN Surge Protection
- -40 to 75°C Operating Temperature Range

Stay Ahead of Challenges and Competition

As manufacturers increasingly rely on remote networks, it is essential to increase field-level defense to meet ever-increasing environmental challenges. The new EDS-E series fulfills Moxa's promises to deliver industry-leading reliability and environmental friendliness. Moxa adds a new generation of reliability features to the EDS-E series switches that drive evolutionary efficiency and manageability, and lower cost of operation to help your business stay ahead of challenges and opportunities.

Performance/Efficiency

- 3 to 16-port Gigabit density
- Up to 4-port Gigabit fiber uplinks
- Energy saving up to 30% through IEEE 802.3az standard
- Compact form factor for space-limited deployment sites

Reliability

- Level-4 EMC/EMI immunity
- Fanless, -40 to 75°C operation
- Complies with C1D2/ATEX, DNV, NEMA TS2, EN 50121-4, IEEE 1613 Class 2 standards

Manageability

- Easy network management with MXstudio (MXview, MXconfig, N-Snap) management suite
- Easy local management by web browser, CLI, USB console, ABC-02-USB, and Windows utility

Availability

Supports Turbo Ring and Turbo Chain (recovery time < 50 ms @ 250 switches), RSTP/STP, and MSTP for fast resilience

Security

- Authentication and authorization by Radius, TACACS+, IEEE 802.1X
- Multi-user access allowed by authentication

Interoperability

Supports EtherNet/IP, PROFINET, and Modbus/TCP protocols for easy PLCs and SCADA integration

White Paper Download
Five Future Challenges for Industrial Ethernet Switches
moxa.com/five_future_challenges

Video Demo
- EDS E series Reliability Tests
- Next Generation of Industrial Ethernet Switches

Moxa.com/new_generation_switches

Next Generation of Industrial Ethernet Switches

Product Series	EDS-510E	EDS-G508E	EDS-G512E	EDS-G516E
Max. No. of Ports	10	8	12	16
Gigabit RJ45 Ports	3	8	8	12
Gigabit SFP Slots	3 (combo)	–	4	4
Fast Ethernet Ports	7	–	–	–
USB Port	USB console port (for local/initial configuration), USB storage port (for backup/restoration)			
Protocols	EtherNet/IP, PROFINET, and Modbus/TCP protocols supported			
Certification	Class 1 Div. 2 / ATEX Zone 2*, DNV, NEMA TS2, EN 50121-4, IEEE 1613 Class 2 compliant			

* Pending for the EDS-G500E series only

Fast and Smart Power over IP Surveillance

Moxa's PoE/PoE+ switches are perfect for networking IP cameras that might support power-demanding PTZ motions, and wiper and heater operations. Moxa's PoE/PoE+ products deliver high port-density Ethernet connections and high power output to facilitate fast edge infrastructure deployment with minimal installation effort and cost. The complete portfolio ranges from 5 to 24-port models and delivers output up to 36 W per PoE+ port with easy and smart power management.

Superior PoE/PoE+ Capability

- IEEE 802.3af/at compliant
- 15.4W/30W/36W/60W PoE/PoE+ output all available
- Supports legacy/non-standard PD by forcing output mode

Easy Management

- Smart PoE management for power scheduling, PD failure detection, and remote PD reboot
- Built-in PoE diagnostics for PoE device power mode
- Easy troubleshooting with LED status indicators

Reliability

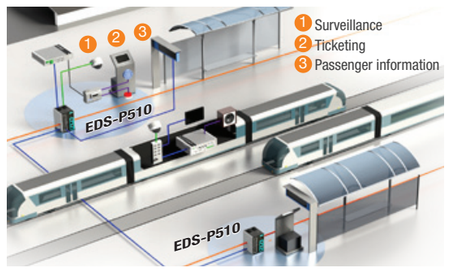
- Supports Turbo Ring, Turbo Chain, and MSTP/RSTP/STP redundancy technologies
- Redundant dual power inputs
- 3 kV LAN surge protection
- -40 to 75°C operating temperature range

moxa.com/Tramway

A Tramway Story from Europe

Ticketing and Surveillance over Fiber Ring

A tramway network in Europe used the EDS-P510 to form a fiber ring network. The PoE switch plays a key role in connecting to surveillance, ticketing, and travel information systems, and also delivers power to IP cameras at every stop.



Solution & Benefits
- EDS-P510 offers 3 Gigabit ports for massive video and data flows
- 36 W high power PoE switch for easy and cost efficient PD device installation
- SFP fiber for data transmission up to 80 km

IKS-6728-8PoE
24+4G-port modular PoE+ switches
- Up to 24-port/720 W full loading
- Up to 36 W output per PoE+ port
- 3 kV LAN surge protection

Extended PoE/PoE+ Support

Plug-n-Play
- INJ-24A series 60 W GbE PoE+ injector
- INJ-24 PoE+ injectors
- SPL-24 PoE splitters

Powered Devices
- VPort 36-1MP H.264 PoE IP camera
- AWK-3121/4121 indoor/outdoor wireless AP/bridge/client
- NPort P5150A 1-port RS-232/422/485 device server
- IMC-P101 Ethernet-to-fiber media converters

Managed PoE+/PoE Switches

Unmanaged PoE+/PoE Switches

	EDS-G512E-8PoE *	IKS-6728-8PoE	EDS-P510A-8PoE	EDS-P506A-4PoE	EDS-P510	TN-5508A-8PoE/ TN-5516A-8PoE *	EDS-G205A-4PoE	EDS-P206A-4PoE	EDS-P308	TN-5308-4/8PoE
Ethernet Ports	12 GE	4 GE + 24 FE	2 GE + 8 FE	6 FE	3 GE + 7 FE	8 FE / 16 FE	5 GE	6 FE	8 FE	8 FE
PoE Ports	8 PoE+	8 / 16 / 24 PoE+	8 PoE+	4 PoE+	4 PoE	4/8 PoE	4 PoE+	4 PoE+	4 PoE	4/8 PoE
PoE Output	36 W	36 W	36 W	30 W	15.4 W	15.4 W	30 W	30 W	15.4 W	15.4 W

* Available in Q3, 2014.

Over 12 Million Moxa Ports Deployed in Industrial Networks

- Built for Mission-Critical Applications
- Over 500 Switch Models to Mix-and-Match
- Diverse Industrial Standards Compliance
- IA and IT-Friendly Management
- 5-Year Product Warranty

Non-Stop Network Connectivity

Moxa has set an industry benchmark by deploying over 12 million ports (on DIN-rail industrial Ethernet switches) in a variety of global mission-critical systems. Moxa's DIN-rail industrial Ethernet switches support speeds from 100 Mb to 1 Gb with different copper and fiber port combinations for maximum flexibility and scalability. The unique features of Moxa's industrial Ethernet switches enable non-stop network connectivity and include proven industrial design, seamless integrated security, and optimized price-to-performance ratio. Built-in fast recovery Ethernet redundancy also ensures excellent availability for business continuity and productivity.

Managed Ethernet Switches

- Ethernet recovery < 20 ms with up to 250 switches
- QoS, VLAN, IGMP snooping
- Easy network management with MXstudio management suite
- Easy local management by web browser, CLI, USB/serial console, ABC-02-USB, and Windows utility
- Enhanced security with TACACS+, IEEE 802.1X, HTTPS, and SSH
- Supports EtherNet/IP, PROFINET, and Modbus/TCP protocols for easy PLC and SCADA integration

Managed/Unmanaged Ethernet Switches

- Full Gigabit and fiber links available
- Fanless operations with -40 to 75°C operating temperature and redundant power inputs
- Industrial robust design with ATEX/C1D2/DNV certifications

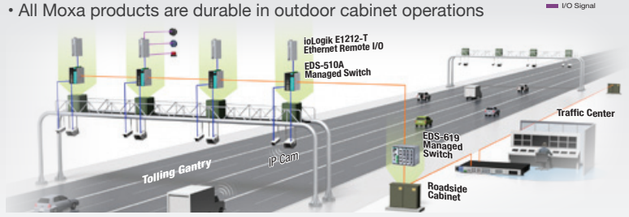
An ITS Story from France moxa.com/ETC

Gigabit Backbone for HGV Toll Collection

A heavy goods vehicles (HGV) toll collection system in France used Moxa's Ethernet switches to deploy an industrial-grade Gigabit backbone to monitor and toll trucks via the vehicles' onboard GPS units.

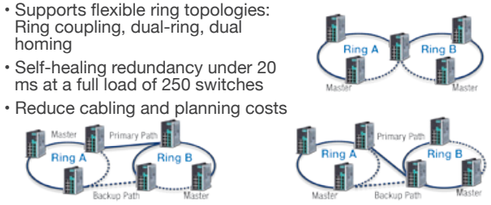
Solution & Benefits

- All switches provide Gigabit ports for massive video and data flows
- Network recovery in 20 ms
- All Moxa products are durable in outdoor cabinet operations



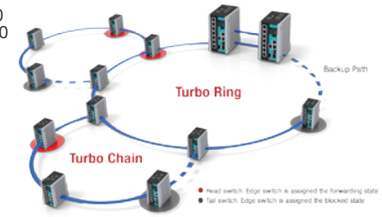
Turbo Ring — Enable Ring and Media Redundancy

- Supports flexible ring topologies: Ring coupling, dual-ring, dual homing
- Self-healing redundancy under 20 ms at a full load of 250 switches
- Reduce cabling and planning costs



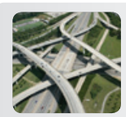
Turbo Chain — Build Complex Redundant Networks Easily

- Redundancy under 20 ms at a full load of 250 switches
- Unlimited redundant network expansions
- Live node expansion without network interruptions
- Tremendous savings on cabling costs



EDS-205A/208A Unmanaged switch series

The EDS-205A/208A series switches offer the best value in terms of reliability and cost efficiency for applications in harsh industrial environments (such as maritime, railway, and highway applications) and hazardous locations (such as oil and gas applications).


NEMA TS2 for Road Traffic

EN 50121-4 for Rail Wayside

C1D2/ATEX Zone 2 for Oil & Gas

UL60950-1 for Process Automation

Managed Ethernet Switches

Modular Gigabit

EDS-619 3G+16-port
EDS-616 16-port
EDS-611 3G+8-port
EDS-608 8-port

- High density multi-fiber connection
- Hot swappable modular and compact design
- Hardware based IEEE 1588 PTP v2 supported

Full Gigabit

EDS-G508E/G512E/G516E 8G/12G/16G-port

- 8 to 16 Gigabit links
- Multiple protocols for SCADA integration
- Level 4 EMC protections
- Diverse industry certifications

Gigabit & Fast Ethernet

EDS-518A 2G+16-port
EDS-510E 3G+7-port

- 2 or 3 Gigabit ports for building redundant ring or uplink service
- Intelligent managed and security features
- Fiber options for long-haul transmission

Fast Ethernet

EDS-516A 16-port
EDS-508A 8-port **EDS-408A 8-port**
EDS-505A 5-port **EDS-405A 5-port**

- 10/100BaseT(X) and 100BaseFX (multi-mode/single-mode)
- Up to 3 fiber ports (EDS-408A 3 fiber series only)
- Long haul transmission of up to 80 km

	Modular				Full GbE	GbE + FE		Fast Ethernet				
	EDS-619	EDS-616	EDS-611	EDS-608	EDS-G508E/ G512E/G516E	EDS-518A	EDS-510A	EDS-516A	EDS-508A	EDS-505A	EDS-408A	EDS-405A
No. of Ports	Up to 19	Up to 16	Up to 11	Up to 8	8, 12, 16	18	10	16	8	5	8	5
Gigabit RJ45/SFP Ports	3/3	–	3/3	–	8, 8/4, 12/4	2/2	3/3	–	–	–	–	–
Max. 10/100TX Ports	Up to 16	Up to 16	Up to 8	Up to 8	–	16, 14	7	16, 14	8, 6	5, 3	8, 6, 5	5, 3
Max. 100FX Ports	Up to 16	Up to 16	Up to 8	Up to 8	–	0, 2	–	0, 2	0, 2	0, 2	0, 2, 3	0, 2

Unmanaged Ethernet Switches

Full Gigabit

EDS-G308 8G-port
EDS-G205 5G-port

- Fiber Gigabit connections (EDS-G308-2SFP)
- 9K Jumbo frame supported
- Redundant 12/24/48 VDC inputs

Gigabit & Fast Ethernet

EDS-210A 8+2G/9+1G-port

- Up to 1 TX and 1 FX Gigabit ports
- Up to 4 10/100 FX or 8 10/100 TX Ethernet ports
- Redundant dual power inputs

Fast Ethernet

EDS-316 16-port **EDS-305 5-port** **EDS-208 8-port**
EDS-309 9-port **EDS-208A 8-port** **EDS-205 5-port**
EDS-308 8-port **EDS-205A 5-port**

- Plug-n-play connections and fiber support
- Broadcast storm protection
- Class I, Div. 2/ATEX Zone 2, maritime rating
- Most compact and cost-effective

	Full Gigabit		Fast Ethernet				GbE + FE	Fast Ethernet			
	EDS-G308	EDS-G205	EDS-316	EDS-309	EDS-308	EDS-305	EDS-210A	EDS-208A	EDS-205A	EDS-208	EDS-205
No. of Ports	8	5	16	9	8	5	10	8	5	8	5
Gigabit RJ45/SFP Ports	8/0, 6/2	5/0	–	–	–	–	1/1, 0/1	–	–	–	–
Max. 10/100TX Ports	–	–	16, 15, 14	6	8, 7, 6	5, 4	4, 8	8, 7, 6	5, 4	8, 7	5
Max. 100FX Ports	–	–	0, 1, 2	3	0, 1, 2	0, 1	4, 0	0, 1, 2	0, 1	0, 1	–

Enjoy Reliability and Mobility for Extreme Applications

- Zero WLAN Packet Loss
- Turbo Roaming under 100 ms
- -40 to 75°C Operating Temperature
- 802.11n Performance

Wireless Reliability and Mobility for Outdoor Productivity

Moxa's industrial wireless solutions offer an innovative combination of reliability and flexibility to ensure maximum uptime and minimal operation costs. Concurrent Dual-Radio technology delivers zero packet loss for WLAN communication and Turbo Roaming technology offers millisecond-scale handovers to deliver seamless wireless connectivity. Outdoor rated features provide unparalleled reliability under extreme conditions, allowing you to extend your network to wherever it is needed.

Reliability
- Fanless, -40 to 75°C operation
- Outdoor IP68-rated housing
- Power redundancy via dual DC inputs and PoE
- Level 3 EMS protection

Availability
- Concurrent 2.4/5 GHz bands for interference free operation
- Turbo Roaming enables handovers in under 100 ms for seamless connectivity
- RSTP for Ethernet redundancy

Performance
- IEEE 802.11a/b/g/n compliant
- AP/Bridge/Client all-in-one solutions for flexible deployment options
- Data rates up to 300 Mbps
- Long distance wireless transmission up to 10 km

moxa.com/WLAN_mining

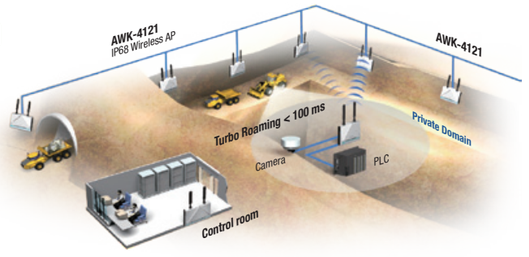
A Mining Story from Australia

Streaming Video for Mobile Monitoring

A mining company needed to install wireless devices atop a fleet of driverless mining trucks to provide reliable video transmission. All operations must withstand vibration and corrosive contaminants in underground tunnels.

Solution & Benefits

The AWK series is built to resist intense vibration on moving vehicles and is also encased in an ADC12 anti-corrosion aluminum housing to protect against contaminants.



AWK-3000/4000 Series

- 100-millisecond Turbo Roaming™
- Versatile connector options
- Built-in DI/DO for real-time event alarms and notifications

AWK-5000/6000 Series

- Concurrent transmissions over dual 2.4 and 5 GHz radio channels for rugged redundancy
- Zero packet loss
- Lower total cost of ownership

Model	802.11a/b/g		802.11a/b/g/n		802.11a/b/g		802.11a/b/g/n	
	AWK-3121	AWK-4121	AWK-3131	AWK-4131	AWK-5222	AWK-6222	AWK-5232	AWK-6232
No. of RFs	1	1	1	1	2	2	2	2
No. of LAN Ports	1	1	1	1	2	2	2	2
LAN Port Interface Options	RJ45, SC, M12	Waterproof RJ45	RJ45, SFP, M12	SFP/M12	RJ45, M12	RJ45	RJ45, M12	M12
IP Rating	IP30	IP68	IP30	IP68	IP30	IP68	IP30	IP68
Operating Temp.	-25 to 60°C or -40 to 75°C	-40 to 75°C	-25 to 60°C or -40 to 75°C	-40 to 75°C	-25 to 60°C or -40 to 75°C	-40 to 75°C	-25 to 60°C or -40 to 75°C	-40 to 75°C
Approvals	UL 60950-1, EN 50155, EN 50121-1/4, UL/cUL Cl D2, ATEX Zone 2		UL 60950-1, EN 50155, EN 50121-1/4		UL 60950-1, EN 50155, EN 50121-1/4	UL 60950-1, EN 50155, EN 50121-1/4, UL/cUL Cl D2, ATEX Zone 2	UL 60950-1, EN 50155, EN 50121-1/4	

moxa.com/WLAN_eBus

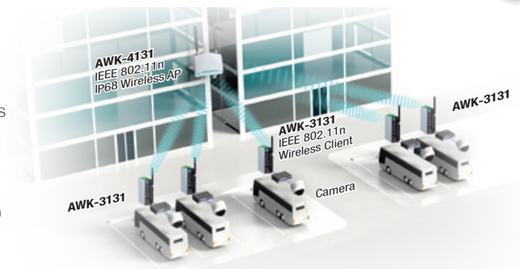
An ITS Story from the U.S.

Video Transmission for Bus Surveillance System

In order to provide stable transmission of surveillance videos from a fleet of buses entering a bus depot, a rugged design was required for both on-vehicle clients and outdoor APs to ensure robust operations.

Solution & Benefits

The AWK series clients and APs use IEEE 802.11n and MIMO (multiple-input and multiple-output) technologies to achieve HD event video transmission.

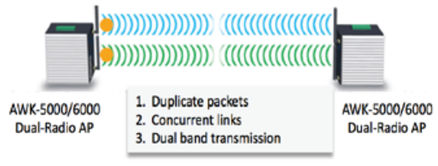


Download Success Story
www.moxa.com/iw_case

Zero Packet Loss for Mission-Critical Mobility

Unlike commercial-grade dual-radio appliances, Moxa's Dual Radio APs actively duplicate wireless packets and concurrently send the duplicated signals on two distinct channels to ensure interference-free communication.

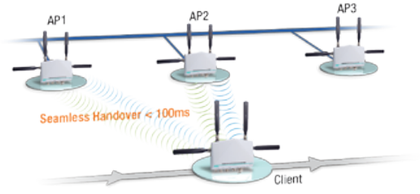
- Duplicate redundant packets for concurrent 2.4/5 GHz transmissions
- Zero Packet Loss in connectivity
- Supports RSTP Ethernet redundancy



Redundant Turbo Roaming for Highly Mobile Connectivity

Moxa's Dual Radio products can perform dual-radio roaming with fast and stable handoffs. This unique combination of technologies creates secure wireless links that excel in highly mobile or latency-sensitive applications.

- Client-based Turbo Roaming for 100 ms handover
- Controller-based Turbo Roaming for 50 ms handover
- Redundant roaming for wireless stability



Find the Right Choice for Your Wireless Needs

Throughput considerations	Radio interference	Environments	Recommendations
• High volume traffic (converged data, voice and video) • High client density • Speed above 54 Mbps (802.11a/b/g/n preferred)	Anti-interference (Dual Radio preferred)	Outdoor	AWK-6232 IP68
		Indoor	AWK-5232
	Interference tolerable	Outdoor	AWK-4131 IP68
		Indoor	AWK-3131
• High volume traffic • Low client density • Speed under 54 Mbps (802.11a/b/g/n applicable)	Anti-interference (Dual Radio preferred)	Outdoor	AWK-6222 IP68
		Indoor	AWK-5222
	Interference tolerable	Outdoor	AWK-4121 IP68
		Indoor	AWK-3121

Mini and Mighty 802.11n Extends Productivity Anywhere

- Wireless AP/Client
- IEEE 802.11n Compliant
- One Gigabit Link
- Seamless Roaming
- Supports MAC Clone

Industrial 2G/3G Reliability and Versatility

- Universal Multiband Support
- Ethernet/Serial/Cellular Communication
- GuaranLink for Constant Connectivity
- Private IP and Central Management
- Robust Design for High Reliability

802.11n Smart Productivity

The AWK-1131A benefits automation networks that require fast, flexible, and reliable wired and wireless convergence.

The palm-size AWK-1131A delivers 802.11n and high-speed Gigabit performance with seamless roaming under 100 ms, and dual power inputs to ensure constant and robust connections. The AWK-1131A can operate on either the 2.4 or 5 GHz bands and is backwards-compatible with existing 802.11a/b/g deployments to future-proof your wireless investments.

AWK-1131A Series

Industrial 802.11n Access Point/Client

- IEEE 802.11a/b/g/n compliant
- Up to 300 Mbps data rate
- Under 100 ms seamless roaming
- One Gigabit link
- Supports MAC clone for Ethernet client

Expandable and Reliable 2G/3G Mobility

Mobile cellular technologies are increasingly necessary to enhance industrial productivity. Moxa's OnCell G3100 devices provide a series of compact and rugged IP gateways to connect your Ethernet and serial devices over a 2G/3G TCP/IP network. OnCell devices utilize GuaranLink technology to ensure reliable and consistent cellular connectivity, and provide high level EMS resistance to ensure longer product life time in harsh environments. OnCell products support VPN and private IP management software for easy and secure mobile management.

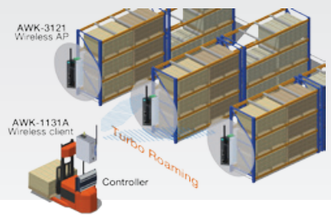
OnCell G3111/G3151-HSPA

Compact IP gateways

- Five-band UMTS/HSPA 850/800, 900, 1900, 2100 MHz
- Quad-band GSM/GPRS/EDGE 850/900/1800/1900 MHz
- Ethernet, serial, and cellular communication
- Industrial-grade reliability
- GuaranLink for constant connectivity
- OnCell Central Manager for easy private IP communication

MAC Clone for Smart Factory Automation

The AWK-1131A can clone the MAC address of a connected Ethernet device and easily connect the device to a wireless LAN. The MAC clone feature is particularly important for automation networks where PLCs won't allow connection from unregistered MAC addresses.



Seamless Connectivity

The AWK-1131A provides Client-based Turbo Roaming with a fast handover under 100 ms to ensure seamless connections. Moxa's Turbo Roaming increases roaming speed and minimizes channel hopping time while roaming.

Industrial-Grade Reliability

The AWK-1131A is compliant with stringent industrial standards and approvals. In addition to extended operating temperature and power input voltage, the AWK-1131A offers surge, ESD, and vibration protection. The small, light, yet rugged wireless device offers a cost and space saving solution for any industrial application.

3G HSPA Performance

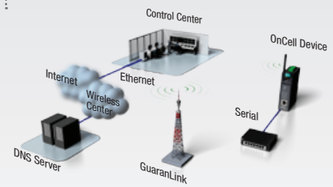
Moxa utilizes HSPA technology to boost data rates up to 14.4 Mbps for downloads, and 5.76 Mbps for uploads, for real-time transmission.

In the example below, the OnCell G3110-HSPA IP gateway delivers live video from a police dash cam, allowing law enforcement officers to respond and monitor emergencies in real time.

For an example, the OnCell G3110-HSPA IP gateway can deliver live video from a police dash cam, allowing law enforcement officers to respond and monitor emergencies timely.

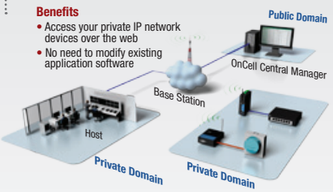
GuaranLink Connectivity

Moxa's GuaranLink™ will constantly check wireless connections to maintain cellular strength and availability to alert users in the event of any link failure.



OnCell Central Manager

The OnCell-HSPA series includes OnCell Central Manager™ software that allows easy private IP communication, and enables remote access and management to alleviate device deployment, administration, and troubleshooting.



Wireless AP/Client

Model	AWK-1121	AWK-1127	AWK-1131A
Standards	802.11a/b/g		802.11a/b/g/n
Functions	Client		AP and Client
No. of RFs	1		1
LAN Ports	1 x 100BaseT(X) (RJ45)		1 x 1000BaseT(X) (RJ45)
Serial Ports	–	1	–
Operating Temperature	0 to 60°C or -40 to 75°C		0 to 60°C
PoE	IEEE 802.3af PoE model available		–
Approvals	UL 60950-1		

2G/3G Cellular Solutions

Model	OnCell G3110-HSPA	OnCell G3150-HSPA	OnCell G3110	OnCell G3150	OnCell G3111-HSPA	OnCell G3151-HSPA	OnCell G3111	OnCell G3151
3G	UMTS/HSPA		–		UMTS/HSPA		–	
2G	GSM/GPRS/EDGE		GSM/GPRS/EDGE		GSM/GPRS/EDGE		GSM/GPRS	
10/100M	1 x RJ45		1 x RJ45		1 x RJ45		1 x RJ45	
SIM	1 x 3V		1 x 3V		1 x 3V		1 x 3V	
Serial	1 x RS-232	1 x RS-232/422/485	1 x RS-232	1 x RS-232/422/485	1 x RS-232	1 x RS-232/422/485	1 x RS-232	1 x RS-232/422/485
VPN	Yes				–			
I/O	1 DO, 2 DI				–			
Power	Dual 12-48 VDC				Single 12-48 VDC			
Operating Temperature	-30 to 55°C or -30 to 70°C				-30 to 55°C			

Optimizing PLC Network Deployment

- Best-in-Class Performance
- Advanced Efficiency
- Maximum Flexibility

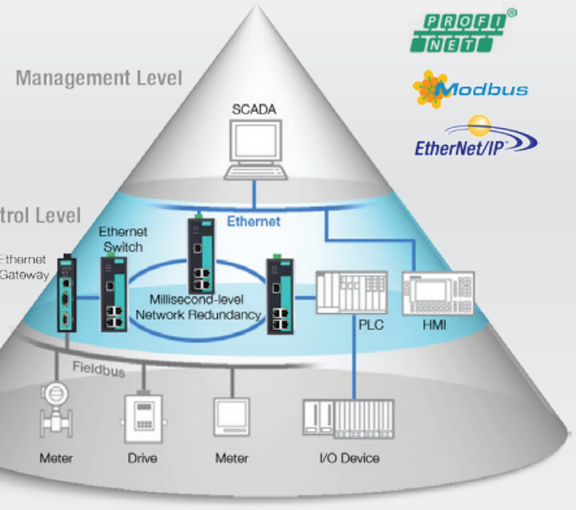
EtherNet/IP conformance tested

Performance • Efficiency • Flexibility

Moxa's industrial Ethernet solutions can optimize PLC network performance, efficiency, and flexibility. Our industrial Ethernet switches and gateways are interoperable with industrial protocols such as EtherNet/IP, PROFINET, and Modbus TCP/IP. Every device is ruggedized to excel in mission-critical applications for production and process automation, such as water & wastewater, oil & gas, food & beverage, and chemical automation, and can be integrated into any large-scale distributed SCADA monitoring system.

Solution Benefits

Moxa's industrial Ethernet switches offer industry-leading redundancy, fast booting capability, full status parameters, and versatile network topologies to ensure high network reliability, availability, manageability, and flexibility of industrial control systems. Moxa's industrial Ethernet gateways are easy to configure, allowing quick integration of legacy field devices and the control network. Also, user-friendly tools and utilities enable operators to quickly diagnose and troubleshoot I/O communications for simple maintenance.



Download White Paper
moxa.com/optimizing_PLC_networks

Download Free Brochure
moxa.com/industrial_gateways

	Best-in-class performance ensures high network capability	Advanced efficiency simplifies configuration and monitoring	Maximum flexibility converges multiple applications
Industrial Ethernet Switches ▶	• < 10 s fast booting • < 20 ms Ethernet redundancy	• Plug-n-play solutions • Full status parameters	• A selection of over 200 protocol-enabled edge-to-core switches • Topology flexibility
Industrial Ethernet Gateways ▶	• Up to 16 Modbus TCP master connections (Modbus Gateways)	• Automatic technologies for quick installation • Easy-to-use web-based GUI • Relay output warning	• Flexible solutions for integration with various industrial protocols

Easy Network Management

Monitor Network Status in SCADA Systems

- Supports PROFINET GSD and EtherNet/IP EDS/AOI files
- Full parameters for comprehensive device status information
- FactoryTalk® View faceplate and Step 7 device icons available

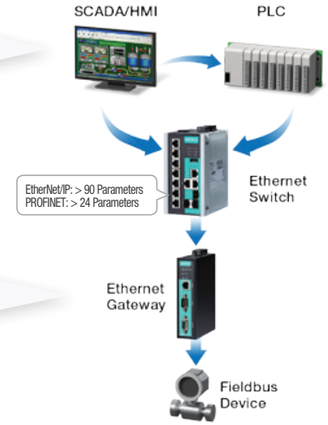
Custom Faceplate of Ethernet Switch

Enable Automated Fieldbus Configuration

- AutoScan enables one-click configuration to detect PROFBUS devices
- AutoCalibration ensures one-click detection of response timeout settings of Modbus connection
- Protocol Analyzer makes monitoring and communication status analysis easy

MGate Manager

Models	MGate 5101-PBM-MN	MGate 5102-PBM-PN	MGate 5105-MB-EIP	MGate MB3170
AutoScan	✓	✓	–	–
AutoCalibration	–	–	–	✓
Protocol Analyzer	✓	–	✓	✓

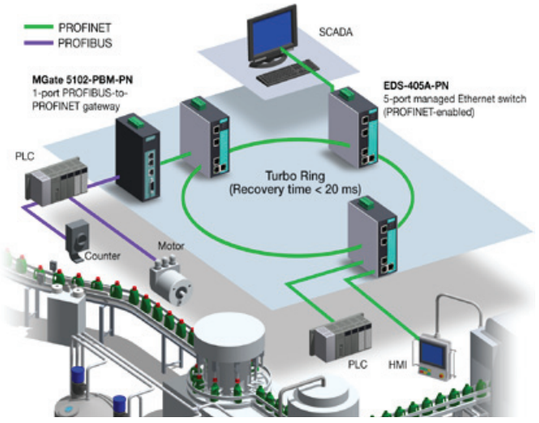


Applications

Food & Beverage Control System

Network Requirements
- An Ethernet-based control system to allow centralized SCADA/HMI control and monitoring of remote networks, including PLCs and fieldbus devices
- Resilient redundancy and high performance
- Efficient and cost-effective system configuration and manageability

Why Moxa?
- One-stop shop for PI-certified solutions
- Turbo Ring/Turbo Chain redundancy technologies (< 20 ms recovery time) to ensure high network availability
- SCADA/HMI object support and web-based management platform for easy network management
- -40 to 75°C operating temperature range



Your Trusted Source for Industrial Automation Needs

Industrial Ethernet Switches

- Fast 10-second booting time for high system availability
- Turbo Ring, Turbo Chain (recovery time < 20 ms @ 250 switches) for network redundancy
- Intelligent network management: EtherNet/IP, PROFINET, Modbus/TCP, IEEE 1588 PTPv2, LLDP, SNMP snooping, VLAN, QoS, and more
- Fiber optic, twisted pair, PoE, and M12 connections available
- -40 to 75°C wide temperature operation (T models)
- IP30/54, 24 VDC, and hazardous location certifications

Industrial Ethernet Gateways

- AutoScan, AutoCalibration, and Protocol Analyzer smart technologies for quick configuration and easy maintenance
- High performance with up to 16 master device connections and 31 slave device connections (Modbus models)
- Web-based MGate manager platform with event log for easy monitoring and troubleshooting
- Relay output warning for quick event response
- -40 to 75°C wide temperature operation (T models)
- Redundant power inputs for non-stop operation

EDS-405A/408A Series
EDS-405A/408A-EIP Series Plug-n-Play
EDS-405A/408A-PN Series Plug-n-Play
5 and 8-port managed Ethernet switches

EDS-608/611/616/619 Series
8, 8+3G, 16, 16+3G-port compact modular managed Ethernet switches

MGate 5101-PBM-MN Series
1-port PROFIBUS-to-Modbus TCP gateways

MGate 5102-PBM-PN Series
1-port PROFIBUS-to-PROFINET gateways

MGate 5105-MB-EIP Series
1-port Modbus-to-EtherNet/IP gateways

MGate MB3170 Series
1-port Modbus RTU/ASCII-to-Modbus TCP gateways

Rugged Serial-to-Ethernet Connectivity

- Multiple Surge Protections
- 2 kV Isolation for Serial Signals
- C1D2 and ATEX certified

Extend Ethernet over Existing Copper Wires

- Up to 100 Mbps Transmission Speed
- Zero Configuration
- Visualized Device Panel Display in Web UI
- LED Indicators for Connection Strength

Extreme Reliability

The NPort IA5000A device servers deliver easy and reliable serial-to-Ethernet connectivity for the industrial automation market and offer enhanced surge protection for serial, LAN, and power lines. The IA5000A device servers support 2 kV isolation for serial signals, and C1D2 and ATEX certified quality. All features are designed to ensure extremely reliable serial-to-Ethernet connectivity for oil and gas, power automation, and other harsh environment applications.

NPort® IA5000A Series

Industrial-grade serial-to-Ethernet device servers

- Complete surge immunity
- 2 kV isolation
- C1D2 and ATEX certified
- Cost-effective cascading links
- Redundant DC power inputs
- Warning by relay output and email
- Wide-temperature from -40 to 75°C

Lower-Cost and Faster Deployment

As an alternative to expensive fiber cables for long distance communication, Moxa's IEX-402 DSL Ethernet extender is a cost-effective solution that leverages existing copper wire infrastructures for fast and efficient network deployment.

The IEX-402 allows plug-and-play deployment and point-to-point Ethernet extension over copper wires up to 8 km or up to 15.3 Mbps speed using G.SHDSL standards, and up to 3 km or up to 100 Mbps speed using VDSL2 standards.

Unbeatable 3-in-1 Protection

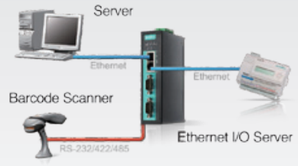
The NPort IA series offers in-line surge protection for LAN, serial, and power lines to protect electrical devices from voltage spikes and damp out electrical noise.

Easy 3-click Deployment

A wizard guides users through 3 simple steps to activate the serial-to-Ethernet application in an average of just 30 seconds.

Lower Cost of Networking

The NPort IA series offers dual Ethernet ports that enable a switch function and cascading connections for lower cost networking.



Zero Configuration

The IEX-402 works in pairs and has an automatic CO/CPE negotiation function that enables plug-and-play, zero configuration deployment.

Easy Management

The IEX-402 offers a full range of connection strength LED indicators for simple troubleshooting. Thanks to the visualized panel display, users can remotely access and manage connection status anywhere via web browser or MXview.

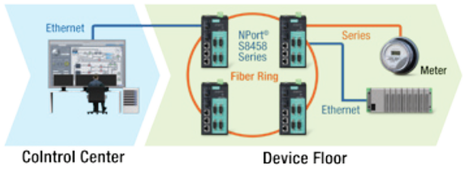
Rugged Reliability

The DIN-rail mount, wide operating temperature range (-40 to 75°C), and dual power inputs make the IEX-402 ideal for use in industrial applications.

NPort® S8455/S8458 Series

Combo switch / serial device servers

- Built-in managed Ethernet switch
- Ring redundancy < 20 ms
- Turbo Ring and Turbo Chain, RSTP/STP, and MSTP supported
- Surge protection for serial, power, and Ethernet
- Level 4 ESD immunity
- Multiple fiber ports for long distance transmission



Model	NPort IA5150A	NPort IA5150AI	NPort IA5250A	NPort IA5250AI	NPort IA5450A	NPort IA5450AI
10/100M Ports	2 x RJ45	2 x RJ45	2 x RJ45	2 x RJ45	2 x RJ45	2 x RJ45
Serial	1 x DB9, 1 x terminal block	1 x DB9	2 x DB9	2 x DB9	4 x DB9	4 x DB9
Isolation Protection	–	2 kV	–	2 kV	–	2 kV
Surge Protection	Power: Level 3; Ethernet: Level 2; Serial: Level 2					
Input Voltage	12 to 48 VDC					
Operating Temperature	0 to 60°C , or -40 to 75°C					
Approvals	UL 508, LVD (EN60950-1), ATEX Zone 2 / C1D2, CE (EN55022 Class A, EN55024), FCC Part 15 Subpart B Class A					

A Factory Automation Story from Taiwan

Emission Treatment and Monitoring

In response to government laws and regulations, a leading manufacturer needed to deploy emission treatment and monitoring systems across 15 plant sites. The IEX-402 enabled DSL connection over existing twisted-pair wires, accelerating network deployment and saving considerable costs.

Solution & Benefits

- Supports 500-meter (max.) point-to-point transmission over existing RS-485/telephone wires
- Easy installation with auto CO/CPE negotiation
- Simple troubleshooting via panel LED indicators

Long-Distance Copper Solution

IEX-402 Series

Managed DSL Ethernet Extenders

- G.SHDSL and VDSL2 standards
- Zero configuration
- Easy management via web UIs and connection strength LEDs
- Rugged reliability

Model	IEX-402-SHDSL	IEX-402-VDSL2
RJ45	1 x 10/100M	1 x 10/100M
DSL	1	1
Operating Temperature	0 to 60°C or -40 to 75°C	
Approvals	CE/FCC, UL 508, EN 50121-4 NEMA TS2 (IEX-402-VDSL2 only)	

Robust Fiber Integration

IMC-101G/101 Series

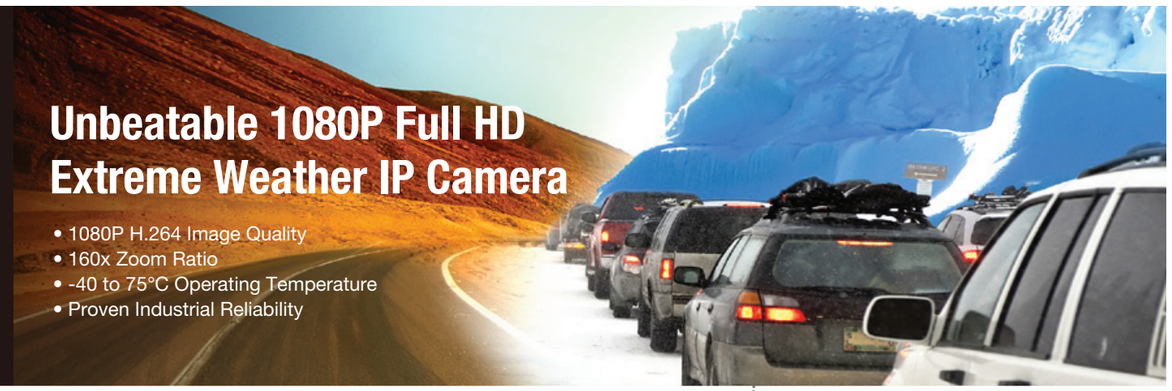
GE/FE to Fiber Media Converter

- Link Fault Pass-through
- Alarms for power/link failure
- Redundant power inputs
- -40 to 75°C operating temperature

Model	IMC-101G	IMC-101
RJ45	1 x 10/100/1000M	1 x 10/100M
Fiber	1 x 1000BaseFX	1 x 100BaseFX
Operating Temperature	0 to 60°C or -40 to 75°C	
Approvals	UL 508, LVD (EN60950-1), ATEX Zone 2 / C1D2, IECEx, CE/FCC	

Reliable and Smart I/O Solutions

- Active SCADA Communications
- Click&Go Control Logic
- Proven Industrial Reliability



Unbeatable 1080P Full HD Extreme Weather IP Camera

- 1080P H.264 Image Quality
- 160x Zoom Ratio
- -40 to 75°C Operating Temperature
- Proven Industrial Reliability

Ease and Reliability for Your Success

Moxa offers robust data acquisition solutions for critical applications involving harsh temperature conditions, explosive atmosphere, severe shock, vibration and other environmental challenges. Our wide selection facilitates the most reliable and flexible I/O combinations. In addition, our value-added automation software enables active SCADA communication, automatic data integration, as well as simple yet powerful control logic. The robust and easy to deploy I/O solutions help customers achieve durable and collaborative operations for smart connectivity and productivity.

Faster SCADA Responses

Moxa's Active OPC Server is extremely efficient at "pushing" event-triggered data to your SCADA system or IT database. Instead of polling and waiting, Moxa's remote I/O products use Active OPC Server to deliver event-driven updates to SCADA systems for faster system response than other OPC servers.

Click&Go™ Control Logic

The simple yet powerful Click&Go™ control logic enables intelligent local control through IF-THEN-ELSE rule-sets that allow Moxa's I/O and RTU products to identify user-defined events and send triggered and time-stamped exception messages through SMS, TCP, and email.

Proven Industrial Reliability

Moxa's approaches to robust data acquisition solutions include high MTBF components selection, strict environmental testing, extra I/O protection, and industrial standard verification to ensure stable operations in harsh environments.

Keep Your Surveillance Awake in Extreme Conditions

Don't let extreme weather conditions put your security off. The VPort 56-2MP is the world's first 1080P Full HD extreme weather IP camera that delivers crystal clear video images in extreme temperatures ranging from -40 to 75°C with no fan or heater required for any outdoor surveillance applications.

VPort 56-2MP Series

Rugged 1080P day-and-night H.264 Zoom IP cameras

- 1920 x 1080 Full HD quality
- -40 to 75°C operating temperature
- 10x optical and 16x digital zoom
- H.264 and MJPEG triple streams up to 30fps
- DNR/ICR/BLC for image optimization
- DynaStream for bandwidth optimization
- Optional fiber port
- Easy VMS and SCADA integration

Full HD Quality

The 1080P Full HD IP camera offers 10x optical 16x digital zoom capability and true day and night visibility. The camera uses 3D DNR, BLC, Sense-up, ICR, and image stabilizer technologies to overcome poor lighting conditions. PTZ capability and fiber transmission are available with add-on options.

Extreme Reliability

The VPort 56-2MP-T* can operate in temperatures ranging from -40 to 75°C without a fan or heater. With a robust IP66/68 and Class 1, Division 2 compliant housing, the camera provides exceptional durability for railway, public security, oil and gas, and extreme outdoor applications.

* Availabile in Q3, 2014.

* Class 1, Div. 2 certification pending; available soon.

Easy Deployment

The VPort 56-2MP supports VMS surveillance platforms such as SoftNVR, Milestones and Genetec. VPort SDK PLUS helps users add video streams into third-party NVR, VMS SCADA systems. The IP camera also supports OnVIF and PoE/PoE+ for cost-effective installation and global interoperability.

-40°C 75°C | NEMA TS2 | EN50121 | c UL us LISTED | FC CE | ONVIF | DynaStream

Industrial Ethernet I/O Solutions

-40°C 75°C | Ex | c UL us LISTED

ioLogik E1200 Series

Ethernet Remote I/O

- Supports Active OPC Server
- 2-port Ethernet switch for daisy-chain topologies
- Save time and wiring cost with peer-to-peer links

-40°C 75°C | c UL us LISTED

ioLogik E2200 Series

Ethernet Micro RTU Controller

- Supports Active OPC Server
- Smart event handling
- Supports SNMPv1/v2c/v3

-40°C 75°C | Ex | c UL us LISTED

ioPAC 5500 Series

Compact RTU Controller

- DI/DO/AI, dual-Ethernet, dual-serial, and HSPA all in one device
- Supports millisecond-scale timestamps
- Supports C/C++ & IEC 61131-3

EN50121 | -40°C 75°C

ioPAC 8500 Series

Modular RTU Controller

- Anti-vibration and hot swappable
- Supports millisecond-scale timestamps
- Supports C/C++ & IEC 61131-3

Extreme Weather Series IP Cameras

	VPort 56-2MP	VPort 36-1MP	VPort 26A-1MP	VPort P16-1MP-M12	VPort P06-1MP-M12
Resolution	1920 x 1080	1280 x 800	1280 x 720	1280 x 800	1280 x 800
10/100M port	1 x RJ45 or 1 x Fiber	1 x RJ45	1 x RJ45 or 1 x M12	1 x M12	1 x M12
PoE	PoE/PoE+	PoE	PoE	PoE	PoE
Audio	✓	–	✓	–	✓
Power input	2, 12/24 VDC, 24 VAC	2, 12/24 VDC, 24 VAC	12/24 VDC or 24 VAC	12/24 VDC	–
Operating Temperature	0 to 60°C, -40 to 50°C, or -40 to 75°C			-25 to 55°C or -40 to 70°C	-25 to 55°C

MOXA®

Reliable Networks ▲ Sincere Service

Your Trusted Partner in Automation

Moxa is a leading manufacturer of industrial networking, computing, and automation solutions. With over 25 years of industry experience, Moxa has connected more than 30 million devices worldwide and has a distribution and service network that reaches customers in more than 70 countries. Moxa delivers lasting business value by empowering industry with reliable networks and sincere service for automation systems.

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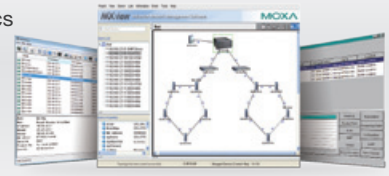
One Toolbox for All Tasks

MXstudio

Free Download
moxa.com/MXstudio_download

Industrial Network Management Suite

- Easy configuration
- Smart visualized monitoring
- Easy backup management
- Quick diagnostics



Enhance Security without Raising Costs

EDR-810 Series

Secure Router/Switch Combo

- 8 FE + 2 GbE ports
- Firewall, NAT, VPN, and switch functions all in one device
- 10 VPN connections
- Modbus TCP deep packet inspection
- Cost-saving with multiple functions

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